

FAX TRANSMISSION**DATE:** February 18, 2010**PTO IDENTIFIER:** Application Number 10/593,036-Conf. #5742
Patent Number**Inventor:** Kenji SUZUKI et al.**MESSAGE TO:** US Patent and Trademark Office - Examiner H. Sayadian**FAX NUMBER:** 571-273-7779**FROM:** BIRCH, STEWART, KOLASCH & BIRCH, LLP
Vanessa Perez**PHONE:** (703) 205-8000**Attorney Dkt. #:** 1592-0165PUS1**PAGES (Including Cover Sheet):** 7**CONTENTS:** Attached are our proposed claim amendments (not for entry). We look forward to our interview on Tuesday, February 23, 2010 at 10:00AM.

If your receipt of this transmission is in error, please notify this firm immediately by collect call to sender at (703) 205-8000 and send the original transmission to us by return mail at the address below.

This transmission is intended for the sole use of the individual and entity to whom it is addressed, and may contain information that is privileged, confidential and exempt from disclosure under applicable law. You are hereby notified that any dissemination, distribution or duplication of this transmission by someone other than the intended addressee or its designated agent is strictly prohibited.

BIRCH, STEWART, KOLASCH & BIRCH, LLP
8110 Gatehouse Road, Suite 100 East, P.O. Box 747, Falls Church, Virginia 22040-0747
Telephone: (703) 205-8000 **Facsimile:** (703) 205-8050

Application No. 10/593,036

Docket No.: 1592-0165PUS1

PROPOSED CLAIM AMENDMENTS - NOT FOR ENTRY

1. (Currently Amended) An InP substrate for epitaxial growth,

wherein, when haze is defined as a value calculated by dividing intensity of scattered light obtained when light is incident from a predetermined light source onto a surface of the InP substrate, by intensity of the incident light from the light source, the light source having a wavelength of 488 nm, and wherein the InP substrate comprises:

the haze [[is]] of not more than 1 ppm all over an effectively used area having at least two inches of the InP substrate; and

an off-angle with respect to a plane direction is 0.05 to 0.10°, wherein the effectively used area includes the surface area of the substrate, with the exception of the peripheral part including the chamfered part of the substrate.

2. (Cancelled)

3. (Cancelled)

4. (Previously Presented) The InP substrate as claimed in claim 1, wherein a dislocation density is not more than 1000/cm².

5. (Previously Presented) The InP substrate as claimed in claim 4, wherein the dislocation density is not more than 500/cm².

Application No. 10/593,036

Docket No.: 1592-0165PUS1

6. (Previously Presented) A compound semiconductor substrate for epitaxial growth, comprising an InP substrate and at least one epitaxial layer on the InP substrate, wherein:

the InP substrate has an off-angle with respect to a plane direction of 0.05 to 0.10°,

the InP substrate has a haze of 0.5 to 0.8 ppm, and

the haze in a surface of the at least one epitaxial layer is not more than 1 ppm,

wherein haze is defined as a value calculated by dividing intensity of scattered light obtained when light is incident from a predetermined light source onto the surface of the at least one epitaxial layer or a surface of the InP substrate, by intensity of the incident light from the light source.

7. (Previously Presented) An InP substrate for epitaxial growth,

wherein, when haze is defined as a value calculated by dividing intensity of scattered light obtained when light is incident from a predetermined light source onto a surface of the InP substrate, by intensity of the incident light from the light source,

the haze is not more than 1 ppm all over an effectively used area of the InP substrate, and

an off-angle with respect to a plane direction is 0.05 to 0.10°.

8. (New) An InP substrate for epitaxial growth, comprising an off-angle with respect to a plane direction of 0.05 to 0.10°, and wherein a manufacturing method of the InP substrate comprises:

performing a mirror polishing on a surface of the InP substrate; and

Application No. 10/593,036

Docket No.: 1592-0165PUS1

SECOND SET OF PROPOSED CLAIM AMENDMENTS – NOT FOR ENTRY

1. (Currently Amended) An InP substrate for epitaxial growth having haze of not more than 1 ppm in an entirety of an effectively used area of the substrate, and further having an off-angle with respect to a plane direction is 0.05 to 0.10°, wherein:

~~wherein, when~~ haze is defined as a value calculated by dividing intensity of scattered light obtained when light is incident from a predetermined light source onto a surface of the InP substrate, by intensity of the incident light from the light source, the light source having a wavelength of 488 nm,

~~the haze is not more than 1 ppm all over an effectively used area of the InP substrate and an off angle with respect to a plane direction is 0.05 to 0.10°, wherein the effectively used area of the wafer~~ includes the entirety of a surface area of the substrate, with the exception of [[the]] a peripheral part including [[the]] a chamfered part of the substrate, and is at least two inches in diameter.

2. (Cancelled)

3. (Cancelled)

4. (Previously Presented) The InP substrate as claimed in claim 1, wherein a dislocation density is not more than $1000/\text{cm}^2$.

Application No. 10/593,036

Docket No.: 1592-0165PUS1

5. (Previously Presented) The InP substrate as claimed in claim 4, wherein the dislocation density is not more than $500/\text{cm}^2$.

6. (Previously Presented) A compound semiconductor substrate for epitaxial growth, comprising an InP substrate and at least one epitaxial layer on the InP substrate, wherein:
the InP substrate has an off-angle with respect to a plane direction of 0.05 to 0.10° ,
the InP substrate has a haze of 0.5 to 0.8 ppm, and
the haze in a surface of the at least one epitaxial layer is not more than 1 ppm,
wherein haze is defined as a value calculated by dividing intensity of scattered light obtained when light is incident from a predetermined light source onto the surface of the at least one epitaxial layer or a surface of the InP substrate, by intensity of the incident light from the light source.

7. (Previously Presented) An InP substrate for epitaxial growth,
wherein, when haze is defined as a value calculated by dividing intensity of scattered light obtained when light is incident from a predetermined light source onto a surface of the InP substrate, by intensity of the incident light from the light source,
the haze is not more than 1 ppm all over an effectively used area of the InP substrate, and
an off-angle with respect to a plane direction is 0.05 to 0.10° .

8. (New) An InP substrate for epitaxial growth having an off-angle with respect to a plane direction of 0.05 to 0.10° , wherein the InP substrate is manufactured by:

Application No. 10/593,036

Docket No.: 1592-0165PUS1

performing mirror polishing on a surface of the InP substrate; and
selecting the substrate only if it has a haze of not more than 1 ppm in an entirety of an
effectively used area of the substrate,
wherein the effectively used area of the substrate is at least two inches in diameter.

9. (New) A manufacturing method of an InP substrate comprising:
performing mirror polishing on a surface of the InP substrate; and
selecting the substrate only if it has both (i) a haze of not more than 1 ppm in an entirety
of an effectively used area of the substrate, and (ii) an off-angle with respect to a plane direction
of 0.05 to 0.10°,
wherein the effectively used area of the substrate is at least two inches in diameter.

10. (New) A method to reduce haze on a surface of an epitaxial layer grown on an
InP substrate, comprising epitaxially growing a semiconductor layer on the InP substrate
according to claim 1.

11. (New) A semiconductor device comprising:
the InP substrate for epitaxial growth according to claim 1; and
a semiconductor layer which is epitaxially grown on the InP substrate.

12. (New) A method to perform an epitaxial growth, comprising epitaxially growing a
semiconductor layer on the InP substrate according to claim 1.